Energy sector development in Romania in the context of climate change, in line with European norms

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Energy sector development in Romania in the context of climate change, in line with European norms: *This document is a necessary contribution to the "development and operationalization of a comprehensive national strategy on climate change and green development with low-carbon emission".*

The main objective of the national strategy on climate change and economic growth in February based on low-carbon economy is to mobilize and enable private and public actors to reduce emissions of greenhouse gases (GHG) from the economic activities in accordance with EU targets and adapt to climate change impacts, both current and future.

Key words: *Climate change, Greenhouse gas emissions (GHG), National Climate Change Action Plan, Energy.*

INTRODUCTION

The action plan for implementation of the national strategy regarding climate change and economic growth based on low carbon, updated in the national program „Romania: The program on climate change and economic growth with low carbon emission" based on the strategy adopted in July 2013. The global objective is to support Romanian Government in preparing the actions related to climate change for mitigation policies and also for the adaptation of operational programs for the 2014-2020 financial cycle.

ACTION PLAN - Definitions and principles

The major objective of the National Action Plan on Climate Change is to develop concrete measures to implement the National Strategy on Climate Change and economic growth based on low carbon emission (document to be completed in October 2015) and is based on the priorities mentioned in these documents. To this end, it is necessary to specify more precisely the activities needed to address priorities for mitigation of the climate change effect, adaptation to this and to be established for the development and implementation stages.

Recommended guidance principles for an action plan on climate change are set out in a series of guides and national. Usually these documents concern the general development strategies, action plans and sectorial plans, but their fundamental principles are relevant to each stage of the process. The report developed by Prutsch et al (2010) highlights the principles of action plans for adaptation to climate change in the United Kingdom (UK Government, 2010) and Germany (BMUB, 2011) as the basis for good practice. These reports on good practice in planning actions to mitigate climate change also provides guidance on the principles to be followed (WRI, 2001; Wang et al, 2013; OECD, 2009).

The following summary of the issues related to these principles are based on the assessment that has been carried on available guides related to adaptation and mitigation of climate change:

• *Durability*. Decisions and actions should take account of the impact on the overall phenomenon of climate change and the ways in which they may limit or affect the mitigation and adaptation responses in other sectors, regions and civil society.

• *Participation.* Consultation of the parts mainly interested in the developing process of the action plan allows the plan to benefit of the knowledge, support and experience in evaluating options, promoting transparency and greater accountability plan.

• *Integration*. All examples of EU climate change strategy and action plans associated with them have been developed with a sectorial approach which, together with intergovernmental working groups, to provide direction on implementation. This integrated

cross-sectorial approach will reduce conflict and foster synergies with other objectives for policies and strategic processes. Therefore, the general action plan should take into account the interconnections between actions from sectors and between them, whereas the implementation of an action can affect the implementation or the effects of other actions.

• *Flexibility*. The action plans should take into account the precautionary principle (i.e. acting under uncertainty about future climate change), but should also be documented with an continuous evolution, that should incorporate the flexibility to adapt to future developments of knowledge on climate change domain, effectiveness of policy responses and new requirements for action.

• *Decisions based on evidence*. Actions should make full use of the latest research and practical experiences so that decisions be based on knowledge and be pragmatic.

• *Set priorities*. Actions should aim to maximize economic and social benefits of climate actions. Thus, they should be effective in reducing the risks of climate change (either by reducing GHG emissions, either by adapting to the impacts of waste), efficient (long-term benefits should outweigh the costs) and fair (should take into account the effects of actions on different social groups and lowering the costs).

• *Responsibilities and international targets*. This will include assessing how the action plan will contribute to achieving the commitments and international targets, such as the EU 2020 target of 20% decrease in greenhouse gas emissions by 2020 compared to 1990 levels, and provision that in the period 2014-2020, climate-related expenditure will represent at least 20% of EU funds ESI.

• *Communication and awareness*. Efficient communication about climate strategy and action plan by a large number of stakeholders also promotes the implementation actions of the strategy. Consequently, communication activities are an integral part of existing national action plans at EU level.

• *Define responsibilities*: Priority actions presented in the plan should clearly state institutions (ministries, departments and other stakeholders) responsible for taking action, but also to specify funding sources. Guidelines on Developing Adaptation Strategies (guidelines for development of adaptation strategies to climate change - EC, 2013) have identified this as a vulnerable area in many national plans.

Energy supply sector is the largest contributor to the carbon footprint of the country, being responsible for 58% of total emissions of greenhouse gases (GHG).

Total CO2 emissions in Romania amounted to 78.7 million tons in 2010, accounting for a modest 2.1% of the total emissions of the EU and 0.23% of global emissions.

In the energy sector between 1992 and 2012, final energy consumption (CFE) by sector decreased significantly by 42%, while it increased in residential (57%), transport (60%) and services (300 %) sectors. The residential sector is the largest consumer of energy in Romania. In 2010, this sector accounted for 36% of total energy demand from end users, solid biomass and natural gas being the most important fuels.

In the energy sector, Romania faces some important challenges to be tackled even more appropriate in a context of climate change.

STEPS IN DRAFTING THE ACTION PLAN

This section outlines the process and methodology for identifying and prioritizing mitigation and adaptation measures for climate change by sector and development of national action plan, in order to establish a process based on best practices for the Romanian action plan. The following sources were mainly used:

• European platform for adaptation to climate change (Climate-adapted): This includes details on adaptation strategies and action plans of Member States and an instrument for supporting the adaptation with the *Guidelines on Developing Adaptation Strategies* (EC, 2013) which defines strategies as an encompassing term for climate

change adaptation policies (including strategies, national action plan and sectoral action plans).

• Guiding Principles for adaptation to climate change in Europe developed by Prutsch et al (2010) for European Topic Centre on Air and Climate Change (ETC / ACC). This document provides guidance on adaptation policy process through ten stages. These steps are taken also in the report of the European Platform for adaptation to climate change (EC, 2013) to constitute a solid basis for developing the strategy and action plans.

• UK Climate Impacts Program - UKCIP. It provides essential information to help decision makers in the public and private sector in planning the response to climate change. UKCIP Adaptation Wizard (UKCIP, 2013) provides a framework to help in communicating a strategy for adaptation to climate change, including the development of policies and actions resilient to climate change.

• Grabs Project: The guide on action plans for adaptation (Grabs, 2010) focuses on how to develop an action plan and set a six-step process for developing strategies and climate action plans.

• US Environmental Protection Agency offers guidelines for the preparation of an action plan for climate change at national level. The steps included establish criteria for evaluating mitigation options, identification options, evaluation and selection of options and determining the administrative process for the implementation, evaluation and measurement.

• The World Resources Institute (WRI, 2001) report focused on Central and Eastern Europe sets out six criteria for good practices evaluation in mitigate policies and measures of climate change.

Each of the guides above indicate that there is no single format and mandatory to be followed in developing the strategy and action plans, also that the steps should be adjusted as appropriate to the requirements of individual countries and local conditions . However, in the steps recommended in various frameworks there is a high degree of consistency in the transition from assessing vulnerabilities and risks to strategic priorities establishment, establish and implement priority actions, monitoring and evaluation of these actions.

Meanwhile, following a logical sequence of this process stages should be considered as iterative phases and linked.

While the guidelines describe what should be included in a strategy, an action plan and lists the general criteria for options evaluating, they do not provide a full detailed methodology and a model for this evaluation, such as how to review the range of options that are corresponding to a variety of criteria. Therefore, in this report and as is clear from the general steps in above guidelines, methodological details are also influenced by available information on specific national practices.

Recommended main steps are explained below, along with recommendations on methods and practices (this is summarized in Figure 1). Here, the focus is on specific steps for preparing the action plan which is based on the strategic priorities outlined in the national strategy on climate change, economic growth based on low carbon emission and fast evaluation of sectoral reports provided by the program "Romania: Climate Change and Economic Growth Program with low carbon emission", carried out between 2013 - 2015 by the Environment, Water and Forests Ministry with technical assistance of the World Bank.

THE ACTION SPHERE

Actions taken in order to reduce GHG emissions and the adaptation to climate change can range from capacity building (e.g. information sharing, establishing the institutional framework) to concrete measures (e.g. investments in projects, economic instruments, legal instruments etc.). The categories of actions are summarized in Table 1 on the proposals in the document "Risk analysis and assessment methods of options for

mitigation and adaptation to climate change" (World Bank 2014b).

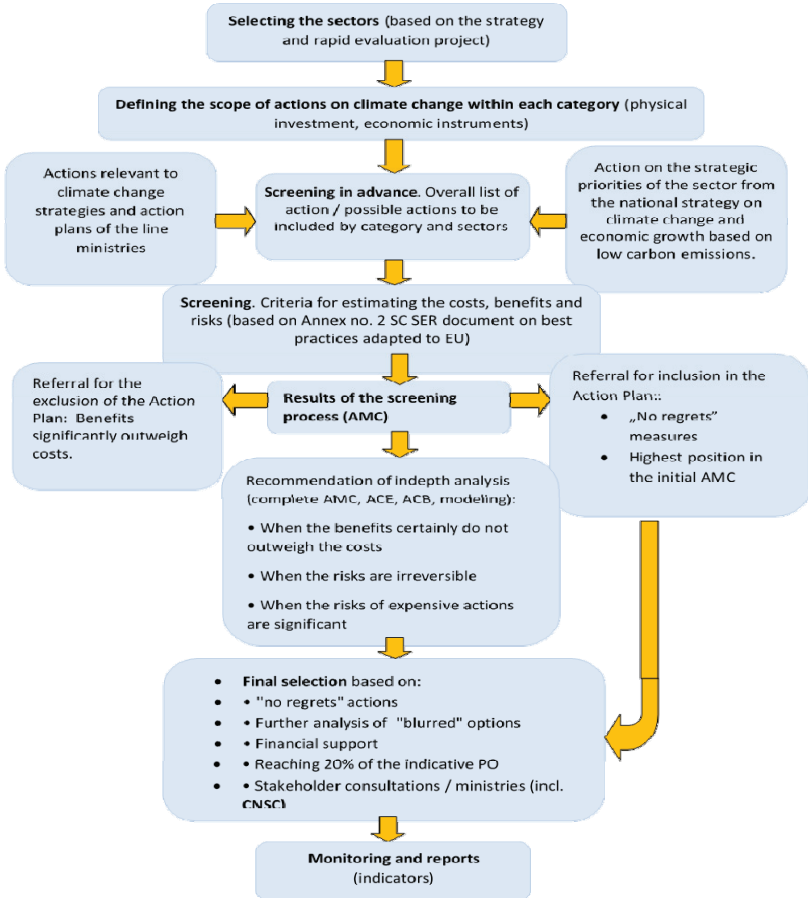

Fig.1. Stages in drafting the action plan on climate change

Table 1. Action categories on climate change

Action type	**Example of action to mitigate / reduce GHG emissions**	**Example of action for climate change adaption**
material investments	Improving the production of energy mix	Flood protection and mitigate the effects of drought
economic incentives	Carbon markets, taxes on carbon dioxide emissions	Rates for water to promote water saving
Legal instruments and standards	Technical standards for energy efficiency in buildings	Standards to increase infrastructure resilience
Technical assistance	Research, training and institutional capacity consolidation	Research, training and institutional capacity consolidation
technology selection	Energy efficiency technologies for energy and transport systems	Promoting efficient use of water for irrigation.
Insurance Facility		Disaster Risk Management generated by SC

CONCLUSIONS AND FUTURE WORK

Romania is on an ascendant path by increasing the living standard of the population. The government wants to develop the country so it will obtain an economy resilient to climate change, low carbon emission, to integrate policies and actions related to climate change in a smart, 'green' and inclusive economic growth by 2030. If managed intelligent and efficient, climate actions or strategic direction outlined in this strategy will help the country to achieve its national development goals and international commitments towards GHG emission reduction targets and adaptation objectives to climate change a win-win situation for all involved parts. It will help develop a promising future for the country.

It could be implemented various measures to adapt to the energy sector:

• diversification of energy production and particularly by including renewables and increasing energy efficiency in all sectors;

• establishing critical infrastructure in the energy system (hydroelectric dams, transmission and distribution system, the transmission system of natural gas, oil and its derivatives etc.) to establish the necessary measures in case of extreme weather events (storms, tornadoes, floods, droughts, very low temperatures etc.). Identify and prioritize measures to reduce the risk of damage or loss due to extreme events.

Acknowledgment

The work has been funded by the Sectorial Operational Programme Human Resources Development 2007-2013 of the Ministry of European Funds through the Financial Agreement POSDRU 187/1.5/S/155420.

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This paper has been reviewed.